

NEW NAMES WITHIN THE SECTION TRIDENTATAE  
OF ARTEMISIA<sup>1</sup>

ALAN A. BEETLE

A study of the ecotypes of big sagebrush and its relatives was made over a three-year period in the eleven western states as well as in adjacent portions of Mexico and Canada. Comparison of morphological characteristics, ecological development, and distribution of species has resulted in the discovery of one new subspecies and two new species within Section *Tridentatae* Rydb. of *Artemisia*. All of the types will be treated in detail in a forthcoming Wyoming Agricultural Experiment Station bulletin.

While the use of *Seriphidium* for a subgenus grouping involving both Old World and New World types (having homogamous heads) may yet have to be proved natural, there is much evidence that the use of Section *Tridentatae* Rydberg embodies a closely knit group of species endemic to the North American continent. These species may be outlined as follows:

1. *A. bigelovii* Gray (*A. petrophila* Wooton & Standley)
2. *A. nova* Nelson
3. *A. pygmaea* Gray
4. *A. rigida* Gray
5. *A. tripartita* Gray (*A. trifida* Nutt.)
- 5 (a). *A. tripartita* subsp. *rupicola* Beetle, subsp. nov. Affinis *A. tripartita* subsp. *tripartita* sed nana, ad 1-1.5 dm. alta, foliis ad 3 cm. longis, singuli parte 1 mm. lata.

Type collection: Wyoming, Albany County, Medicine Bow National Forest, Pole Mt., Sept. 7, 1958, *A. A. Beetle 13185*. TYPE in the Rocky Mountain Herbarium; duplicates in Gray Herbarium, Chicago Natural History Museum, U. S. National Herbarium, and the herbarium of the University of California, Berkeley.

*A. tripartita* subsp. *rupicola* is a dwarf plant rarely over 1.5 dm. tall. Its leaves are often 3 cm. long, with both the basal portion and each lobe at least 1 mm. wide. In contrast *A. tripartita* subsp. *tripartita* is an erect plant up to two meters tall, with leaves seldom over 2 cm. long, both the basal portion and each of the three lobes about 0.50 to 0.75 mm. wide. *A. tripartita* subsp. *rupicola* occupies rocky knolls from 8,000 to 9,000 feet elevation

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from the Owl Creek Mountains and from South Pass in Central Wyoming to the Laramie Range in southeastern Wyoming. *A. tripartita* subsp. *tripartita* occupies the deeper soils at the base of foothills from 5,000 to 7,000 feet elevation and occurs from southern British Columbia, Canada, southward through Washington, Idaho, and Montana to western Wyoming and northern Utah.

6. *A. tridentata* Nutt.

6(a). *A. tridentata* subsp. *vaseyana* (Rydb.) Beetle, comb. nov.

Based on *A. vaseyana* Rydb. North American Flora 34 (3):283. 1916.

*A. tridentata* subsp. *vaseyana* has a range geographically distinct from that of *A. tridentata* subsp. *tridentata*. It differs mainly in the characters emphasized by Rydberg, namely broader involucre, more flowers per head, and broader, and more truncate or cuneate leaves.

6(b). *A. tridentata* subsp. *vasyana* (Rydb.) Beetle, f. *spiciformis* (Osterhout) Beetle, comb. nov.

Based on *A. spiciformis* Osterhout, Bull. Torrey Club 27:507. 1900.

This plant is an extreme form, always occurring at the upper elevational limits of the subspecies and always in close proximity of *A. cana* subsp. *viscidula*, leading to the speculation that it may partially represent crossing between *A. tridentata* subsp. *vaseyana* and *A. cana* subsp. *viscidula*.

6(c). *A. tridentata* subsp. *tridentata*, f. *parishii* (Gray) Beetle, comb. nov.

Based on *A. parishii* Gray, Proc. Am. Acad. 17:220. 1882.

While *A. tridentata* subsp. *tridentata* f. *parishii* is an eye-catching form in the field because of its strikingly reflexed branches of the inflorescence (in addition to having somewhat hairy achenes), it occurs sporadically throughout the range of *A. tridentata* subsp. *tridentata* in many more localities than have been reported previously. It has not been reported occurring within the range of *A. tridentata* subsp. *vaseyana*.

7. *A. arbuscula* Nutt.

7(a) *A. arbuscula* subsp. *thermopola* Beetle subsp. nov. Affinis *A. arbuscula*, arbuscula sed planta gracile, cum foliis filiformibus, tripartitis profunde.

Type collection: Wyoming, Teton County, along banks of Snake River near south entrance to Yellowstone National Park, August 10, 1957, *A. A. Beetle 12631*. TYPE in the Rocky Mountain Herbarium.

This is the variation described by Ward (Contrib. from the

Dudley Herbarium 4 (8):180, 1953) as having "deeply trifid leaves" with the exception that its distribution seems to be confined to the area from Yellowstone National Park, Wyoming, south to Salt Lake City, Utah.

8. *A. longiloba* (Osterhout) Beetle, comb. nov.

Based on *A. spiciformis longiloba* Osterhout, *Muhlenbergia* 4:69. 1908.

While this plant has usually been treated as a part of *A. arbuscula*, it occurs on different sites, preferring the most strongly alkaline and highly impermeable soils. It also blooms approximately a month earlier and morphologically is distinguished by its larger, many-flowered heads.

9. *A. rothrockii* Gray

10. *A. cana* Pursh

10 (a). *A. cana* subsp. *bolanderi* (Gray) Ward

10 (b). *A. cana* subsp. *viscidula* (Osterhout) Beetle, comb. nov.

Based on *A. cana* var. *viscidula* Osterhout, *Bull. Torrey Club* 27:507. 1900. *A. viscidula* (Osterhout) Rydberg. *Bull. Torrey Club* 33:157. 1906.

This subspecies has a distinct geographical range from *A. cana* subsp. *cana*. It occurs in the high mountain valleys of the Rocky Mountains and is distinguished by the smaller, dark-green leaves, which are frequently asymmetrically lobed.

11. *A. argilosa* Beetle sp. nov. Planta inter *A. cana* subsp. *viscidula* et *A. longiloba* intermedia; rami erecti, ad 1 m. alti; foliis ad 4 cm. longis, tripartitis profunde singuli parte 2-3 mm. lati; florum 5-10, 3.0-3.5 mm. longum; achenium 1.8 mm. longum.

Type collection: Colorado, Jackson County, Coalmont, July 31, 1957, *A. A. Beetle 12872*, TYPE in the Rocky Mountain Herbarium.

This plant has deeply three-lobed leaves, very much of the general appearance of those of *A. tripartita*. They are, however, commonly up to 4 cm. long, and not only the basal portion but each lobe is 2-3 mm. broad. The plants occur on strongly alkaline soil associated with greasewood (*Sarcobatus vermiculatus*) and saltsages (*Atriplex* spp.). The plants are erect in habit and approximately 1 m. tall. All the collections of this plant are from a very limited area in the vicinity of Coalmont. A detailed study of the morphological characters of this plant indicates that they are intermediate between those of *A. cana* subsp. *viscidula* and those of *A. longiloba*, both of which occur in the vicinity. This

new species supposedly of hybrid origin does not now occur mixed with its theoretical parents, and intergradation of the kind so common in this group of species of *Artemisia* does not occur in the area.

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— WYOMING AGRIC. EXPER. STA., LARAMIE, WYOMING

A NEW VARIETAL COMBINATION IN *Oxybaphus*. — In a pre-publication review of the writer's mss. on west-American range forbs the eagle eye of Dr. S. F. Blake has detected an improperly published new combination in *Oxybaphus*, a defect which this note assays to correct:

*Oxybaphus linearis* var. *subhispida* (Heimerl) Dayt., comb. nov. *Mirabilis linearis subhispida* Heimerl, Ann. Conserv. & Jard. Bot. Genève 5: 186. 1901. *Allionia linearis subhispida* Standl., Contrib. U. S. Nat. Herb. 12: 342. 1909. *A. gausapoides* Standl., Contrib. U. S. Nat. Herb. 13: 406. 1911. *A. subhispida* (Heimerl) Standl., Contrib. U. S. Nat. Herb. 16: 120. 1913.

This plant's hairiness seems to rate hardly more than varietal relationship to typical *Oxybaphus linearis* (Pursh) Robins. (syn. *Allionia linearis* Pursh), as Heimerl indicated when he first described this entity. The generic status of *Oxybaphus* seems now to be widely recognized; its fruit and floral characters suggest a closer relationship to *Mirabilis* than to *Allionia*. *O. linearis* var. *subhispida* occupies rather dry to medium moist sandy or gravelly soils but sometimes also heavy clays and moist rich loams, from "desert" areas to the ponderosa pine type, often partly protected such as under mesquite bushes or canyon cottonwoods. Its range, not too well known, is from extreme southwestern Colorado, New Mexico and western Texas south into Mexico. As a rule it is eaten little, if at all, by domestic livestock. However, there appear to be some exceptions. It is reported as common on shale banks about 9,000 feet on the Montezuma National Forest (southwestern Colorado) and there eaten with some relish by cattle. — WILLIAM A. DAYTON, ARLINGTON, VA.

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